**D.J.SANGHVI COLLEGE OF ENGINEERING**

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DIVISION:EXTC-H SCILAB PRACTICAL:4

DATE:07/03/2013 TITLE:RUNGE KUTTA METHOD

QUESTION NO: Solve dy/dx=xy with condition y(1)=2. Find y at x=1.2 and x=1.4 by Runge Kutta method.

PROGRAM:

deff('[z]=f(x,y)','z=x\*y')

x0=input('Enter the initial value of x=')

y0=input('Enter the initial value of y=')

xn=input('Enter the final value of xn=')

h=input('Enter the increment of x=')

x=[x0:h:xn]

y=zeros(x)

n=length(y)

y(1)=y0

n=(xn-x0)/h

for i=1:n

k1=h\*f(x(i),y(i))

k2=h\*f(x(i)+h/2,y(i)+k1/2)

k3=h\*f(x(i)+h/2,y(i)+k2/2)

k4=h\*f(x(i)+h,y(i)+k3)

k=(k1+2\*k2+2\*k3+k4)/6

y(i+1)=y(i)+k

end

disp(y(i+1),'y(xn)=');

INPUT:

Enter the initial value of x=1

Enter the initial value of y=2

Enter the final value of xn=1.2

Enter the increment of x=0.2

OUTPUT:

ymax=

2.4

INPUT:

Enter the initial value of x=1.2

Enter the initial value of y=2.4

Enter the final value of xn=1.4

Enter the increment of x=0.2

OUTPUT:

ymax=

3.033